

We claim:

1. A method of forming a cellular structure comprising the steps of:
  - a. forming a tab in a front portion of fabric, the tab having a top and a bottom;
  - b. inserting one edge of a vane between the top and the bottom;
  - c. bonding the top and the bottom of the tab to the vane between them;
  - d. attaching an opposite edge of the vane to a rear portion of fabric; and
  - f. repeating steps a through d until a desired number of cells have been formed.
2. The method of claim 1 also comprising removing material from at least one tab so that the at least one tab has a consistent width along its length.
3. The method of claim 1 wherein the tops, bottoms and vanes are bonded by ultrasonic welding.
4. The method of claim 1 wherein the tops, bottoms and vanes are bonded with an adhesive.
5. The method of claim 4 wherein the adhesive is a thermoplastic adhesive.

6. The method of claim 1 wherein material is being removed from a tab while portions of the top of that tab, the bottom of that tab and the vane between them are being bonded.

7. The method of claim 6 wherein the top of that tab, the bottom of that tab and the vane between them are ultrasonically bonded.

8. The method of claim 6 wherein the top of the tab, the bottom of the tab and the vane between them are bonded with a thermoplastic adhesive.

9. The method of claim 1 wherein at least a portion of the material that is removed has a width of from 0.010 to 0.150 inches.

10. The method of claim 1 wherein the rear portion of fabric is attached to the opposite edge of at least one vane by the steps of:

a. forming a rear tab in the rear sheet, the rear tab having a top and a bottom;

b. inserting the opposite edge of the at least one vane between the top and the bottom of the rear tab; and

c. bonding the top of the rear tab, the bottom of the rear tab and the opposite edge of the at least one vane between them together.

11. The method of claim 10 also comprising removing material from the top and the bottom of the rear tab so that the rear tab has a consistent width along its length.

12. The method of claim 10 also comprising running at least two lift cords through one of each tab, each rear tab and each vane.

13. The method of claim 12 wherein the at least two lift cords have a lift cord diameter and wherein at least one of the front portion of fabric and the rear portion of fabric are a striated fabric having striate yarns which have a striate yarn diameter and comprising the step of selecting the lift cord diameter and the striate yarn diameter so that the lift cords are not perceptibly different in diameter from the striate yarns.

14. The method of claim 12 wherein at least one of the front portion of fabric and the rear portion of fabric are a striated fabric.

15. The method of claim 1 also comprising running at least two lift cords through one of each tab and each vane.

16. The method of claim 15 wherein the at least two lift cords have a lift cord diameter and wherein at least one of the front portion of fabric and the rear portion of fabric are a striated fabric having striate yarns which have a striate yarn diameter and comprising the step of selecting the lift cord diameter and the striate yarn diameter so that the lift cords are not perceptibly different in diameter from the striate yarns.

17. The method of claim 15 wherein at least one of the front portion of fabric and the rear portion of fabric are a striated fabric.

18. The method of claim 1 wherein the front portion of fabric and the rear portion of fabric are a light transmissive material.

19. The method of claim 18 also comprising removing each tab.

20. A single cell cellular structure comprised of a plurality of cells each cell comprised of:

a. an upper vane having a front edge and a rear edge;  
b. a lower vane having a front edge and a rear edge;  
c. a rear wall to which the rear edges of the upper vane and the lower vane are attached; and

d. a C-shaped front wall having an upper end attached to the front edge of the upper vane and a lower end attached to the front edge of the lower vane, wherein an outwardly facing tab is formed by the front edge of each vane, the upper end of one C-shaped front wall and the lower end of an adjacent C-shaped front wall.

21. The cellular structure of claim 20 wherein the rear wall is C-shaped having an upper end attached to the rear edge of the upper vane and a lower end attached to the rear edge of the lower vane forming a rear tab.

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22. The cellular structure of claim 21 wherein an outwardly facing rear tab is formed by the rear edge of each vane, the upper end of one C-shaped rear wall and the lower end of an adjacent C-shaped rear wall.

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23. The cellular structure of claim 21 also comprising at least two lift cords through one of each tab, each rear tab and each vane.

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24. The cellular structure of claim 23 wherein the at least two lift cords have a lift cord diameter and wherein at least one of the front wall and the rear wall are a striated fabric having striate yarns which have a striate yarn diameter such that the lift cord diameter and the striate yarn diameter are not perceptibly different.

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25. The cellular structure of claim 24 wherein the front wall and the rear wall are a light transmissive material.

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26. The cellular structure of claim 25 also comprising at least two lift cords through one of each tab and each vane.

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27. The cellular structure of claim 26 wherein the at least two lift cords have a lift cord diameter and wherein at least one of the front wall and the rear wall are a striated fabric having striate yarns which have a striate yarn diameter such that the lift cord diameter and the striate yarn diameter are not perceptibly different.

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28. The cellular structure of claim ~~26~~<sup>7</sup> wherein at least one of the front wall and the rear wall are a striated fabric having striate yarns which are substantially parallel to at least one of the at least two lift cords.

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29. The cellular structure of claim ~~28~~<sup>9</sup> wherein the striated fabric contains striate yarn having a diameter and also comprising at least one cord passing through the cells, the at least one cord having a diameter not greater than twice the diameter of the striate yarn.

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30. The cellular structure of claim ~~29~~<sup>1</sup> wherein each outwardly facing tab has been trimmed so as to not exceed 0.005 inches.

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31. A cellular structure comprised of :

- a. a front surface and a substantially parallel rear surface, at least one of the front surface and the rear surface being a striated fabric containing striate yarn having a diameter;
- b. a plurality of vanes connected between the front surface and the rear surface in a manner to form cells; and
- c. at least one cord passing through the cells, the at least one cord having a diameter not greater than twice the diameter of the striate yarn.

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32. The cellular structure of claim ~~31~~<sup>12</sup> wherein the at least one cord is parallel to at least a portion of the striate yarn.

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33. An improved window covering of the type having a cellular material having a plurality of cells with lift cords passing through the cells and extending from a headrail wherein the improvement is comprised of a cellular structure in which a plurality of the cells forming the cellular structure is comprised of:

- a. an upper vane having a front edge and a rear edge;
- b. a lower vane having a front edge and a rear edge;
- c. a rear wall to which the rear edges of the upper vane and the lower vane are attached; and
- d. a C-shaped front wall having an upper end attached to the front edge of the upper vane and a lower end attached to the front edge of the lower vane;

wherein an outwardly facing tab is formed by the front edge of each vane, the upper end of one C-shaped front wall and the lower end of an adjacent C-shaped front wall.

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34. The improved window covering of claim 33 wherein the rear wall is C-shaped having an upper end attached to the rear edge of the upper vane and a lower end attached to the rear edge of the lower vane.

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35. The improved window covering of claim 34 wherein an outwardly facing rear tab is formed by the rear edge of each vane, the upper end of one C-shaped rear wall and the lower end of an adjacent C-shaped rear wall.

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36. The improved window covering of claim ~~33~~<sup>14</sup> wherein the front wall and the rear wall are a light transmissive material.

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37. The improved window covering of claim ~~33~~<sup>14</sup> wherein the at least two lift cords have a lift cord diameter and wherein at least one of the front wall and the rear wall are a striated fabric having striate yarns which have a striate yarn diameter such that the lift cord diameter and the striate yarn diameter are not perceptibly different.

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38. The improved window covering of claim ~~33~~<sup>14</sup> wherein the plurality of lift cords pass through one of each tab and each vane.

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39. The improved window covering of claim ~~33~~<sup>14</sup> wherein the plurality of lift cords have a lift cord diameter and wherein at least one of the front wall and the rear wall are a striated fabric having striate yarns which have a striate yarn diameter such that the lift cord diameter and the striate yarn diameter are not perceptibly different.

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40. The improved window covering of claim ~~33~~<sup>14</sup> wherein at least one of the front wall and the rear wall are a striated fabric having striate yarns which are substantially parallel to at least one of the plurality of lift cords.

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41. The improved window covering of claim ~~40~~<sup>21</sup> wherein the striated fabric contains striate yarn having a diameter and the plurality of lift cords each have a diameter not greater than twice the diameter of the striate yarn.



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42. The improved window covering of claim ~~33~~<sup>14</sup> wherein each outwardly facing tab has been trimmed so as to not exceed 0.005 inches.

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43. The improved window covering of claim ~~33~~<sup>14</sup> wherein at least one of the front wall and the rear wall are a striated fabric.

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44. The improved window covering of claim ~~43~~<sup>24</sup> wherein the striated fabric contains striate yarn having a diameter and also comprising at least one cord passing through the cells and into the headrail, the at least one cord having a diameter not greater than twice the diameter of the striate yarn.

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45. An improved window covering of the type having a cellular material extending from a headrail wherein the improvement is comprised of a cellular structure forming the cellular material which cellular structure is comprised of:

- a. a front surface and a substantially parallel rear surface , at least one of the front surface and the rear surface being a striated fabric containing striate yarns having a diameter;
- b. a plurality of vanes connected between the front surface and the rear surface in a manner to form cells; and
- c. at least one cord passing through the cells and into the headrail.

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46. The improved window covering of claim ~~45~~<sup>26</sup> wherein the at least one cord has a diameter not greater than twice the diameter of the striate yarns.

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47. The improved window covering of claim 45 wherein the at least one cord is substantially parallel to at least a portion of at least some of the striate yarns.

48. A single cell cellular structure comprised of a plurality of cells, each cell comprising:

- a. an upper vane having a front edge and a rear edge;
- b. a lower vane having a front edge and a rear edge;
- c. a rear wall having an upper edge attached to the rear edge of the upper vane and a lower edge attached to the rear edge of the lower vane; and
- d. a front wall having an upper edge attached to the front edge of said upper vane and a lower edge attached to the front edge of said lower vane.

49. A single cell cellular structure in accordance with claim 48 in which the upper and lower edges of said front and rear walls extend outwardly.

50. A single cell cellular structure in accordance with claim 48 in which the upper and lower edges of either said front wall or said rear wall extend substantially parallel to one each other.

51. A single cell cellular structure in accordance with claim 48 in which the upper edge of said rear wall extends in a direction opposite to the upper edge of said front wall.

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52. A cellular shade structure comprising:

- a. a front surface; and
- b. a rear surface, at least one of said front and rear surfaces including a plurality of tabs, each of said tabs comprising an upper layer of material, an intermediate layer of material and a lower layer of material.

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A cellular shade structure in accordance with claim <sup>29</sup>52, in which the intermediate layers of said tabs comprise the outer portions of vanes connecting said front and rear surfaces.

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A cellular shade structure in accordance with claim <sup>29</sup>52, in which the lower layer of one of said tabs, the upper layer of the lower adjacent one of said tabs, and the intermediate portion of said outer surface comprise a continuous segment of material.

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A cellular shade structure in accordance with claim <sup>29</sup>52, in which said layers are joined to each other by ultrasonic welding.

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A cellular shade structure in accordance with claim <sup>29</sup>52, in which said layers are joined to each other by adhesive material.

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. A cellular shade structure in accordance with claim 29, wherein said top layer and said bottom layer are formed from a continuous piece of material which is wrapped around the intermediate layer and trimmed to separate the top layer from the bottom layer.

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